

Cat. No. 20-422  
**OWNER'S MANUAL**

Please read before using this equipment.

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# **200CH VHF/Air/UHF Home Scanner**

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**with Scanner Control Protocol and WX Alert**



**RadioShack®**

# FEATURES

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Your RadioShack 200Ch VHF/Air/UHF Home Scanner lets you in on all the action! This scanner gives you direct access to over 23,000 frequencies, including those used by police and fire departments, ambulance and transportation services, government agencies, and amateur radio services. You can select up to 200 channels to scan and you can change selections at any time.

The scanner's frequency bands let you search specific, preset ranges of frequencies quickly and easily.

Your scanner has all these special features:

**Weather Alert** — warns you of serious weather conditions by sounding an alarm if the weather service transmits a weather alert tone.

**Weather Band Key** — scans seven pre-programmed weather channels to keep you informed about current weather conditions.

**Scanner Control Protocol** — lets you download channel information (frequency, lockout, priority, delay) from your PC to the scanner.

**Ten 20-Channel Storage Banks** — let you store 20 channels in each of ten banks to group channels so calls are easier to identify.

**Ten Monitor Memories** — let you temporarily save ten frequencies located during a frequency search, so you can decide if you want to store them permanently.

**Priority Channels** — let you set the scanner to check up to ten channels every 2 seconds so you do not miss important calls.

**Band Search** — lets you quickly and easily search preset frequency ranges, so you can find new and unlisted broadcasts.

**Direct Search** — lets you search for a transmission starting from a specified frequency.

**Search Skip** — lets you select up to 20 frequencies for the scanner to skip during a search, so you can search more efficiently.

**Two-Second Channel Scan/Search Delay** — lets you set the scanner so it delays scanning or searching for 2 seconds before moving to another channel/frequency, so you can hear more replies.

**Lock-Out** — keeps channels you select from being scanned, so you can skip over busy channels such as those with a continuous transmission.

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**Key Confirmation Tones** — the scanner sounds a tone when you perform an operation correctly and sounds an error tone if you make an error.

**Memory Backup** — keeps channel frequencies stored in memory for an extended time even if your scanner loses power.

**External Speaker Jack** — lets you connect an external speaker, or an earphone or headphones for private listening.

**External Antenna Terminal** — lets you connect an external antenna (not supplied) for improved reception.

Your scanner can receive all of these frequencies:

- 29–54 MHz (10-Meter Amateur Radio, VHF Lo, 6-Meter Amateur)
- 108–136.975 MHz (Aircraft)
- 137–174 MHz (Government, 2-Meter Amateur Radio, VHF Hi)
- 406–512 MHz (UHF Lo, 70-Centimeter Amateur Radio, Government, UHF “T” Band)

This table shows the preset frequency steps your scanner uses for each frequency range.

Frequency Range (MHz)	Step (kHz)
29–54	5
108–136.975	12.5
137–144	5
144–148	5
148–174	5
406–450	12.5
450–470	12.5
470–512	12.5

**Note:** The frequency steps are preset. You cannot change them.

Your scanner can also receive these preprogrammed weather channel frequencies:

- 162.400 MHz
- 162.425 MHz
- 162.450 MHz
- 162.475 MHz
- 162.500 MHz
- 162.525 MHz
- 162.550 MHz

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## FCC NOTICE

Your scanner might cause TV or radio interference even when it is operating properly. To determine whether your scanner is causing the interference, turn off your scanner. If the interference goes away, your scanner is causing it. Try to eliminate the interference by:

- moving your scanner away from the receiver
- connecting your scanner to an outlet that is on a different electrical circuit from the receiver
- contacting your local RadioShack store for help

If you cannot eliminate the interference, the FCC requires that you stop using your scanner.

This device complies with Part 15 of the *FCC Rules*. Operation is subject to the following conditions: (1) This device must not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

## SCANNING LEGALLY

Your scanner covers frequencies used by many different groups including police and fire departments, ambulance services, government agencies, private companies, amateur radio services, military operations, pager services, and wireline (telephone and telegraph) service providers. It is legal to listen to al-

most every transmission your scanner can receive. However, there are some transmissions you should never intentionally listen to. These include:

- telephone conversations (cellular, cordless, or other private means of telephone signal transmission)
- pager transmissions
- any scrambled or encrypted transmissions

According to the Electronic Communications Privacy Act (ECPA), you are subject to fines and possible imprisonment for intentionally listening to, using, or divulging the contents of such a transmission unless you have the consent of a party to the communication (unless such activity is otherwise illegal).

This scanner has been designed to prevent reception of illegal transmissions. This is done to comply with the legal requirement that scanners be manufactured so as to not be easily modifiable to pick up those transmissions. Do not open your scanner's case to make any modifications that could allow it to pick up transmissions that it is not legal to listen to. Doing so could subject you to legal penalties.

We encourage responsible, legal scanner use.

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# PREPARATION

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This scanner is designed for use in the home as a base station. You can place it on any flat surface such as a desk, shelf, or table.

## REMOVING THE DISPLAY PROTECTOR

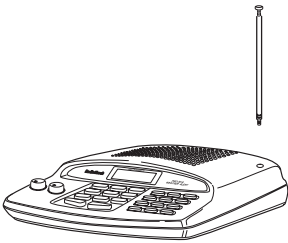
Your scanner's display is protected during shipment by a piece of film. Peel off this film before you use the scanner.

## CONNECTING AN ANTENNA

### Connecting the Supplied Antenna

You must install an antenna before you can operate the scanner.

The supplied telescoping antenna helps your scanner receive strong local signals. To install the antenna, thread it clockwise into the hole on the scanner's top.



The scanner's sensitivity depends on the antenna's length and various environmental conditions. For the best re-

ception of the transmissions you want to hear, adjust the antenna's length.

Frequency (MHz)	Antenna Length
29–54	Extend fully
108–174	Collapse one segment
406–512	Collapse both segments

### Connecting an Outdoor Antenna

Instead of the supplied antenna, you can connect an outdoor base-station antenna (not supplied) to your scanner. Your local RadioShack store sells a variety of antennas. Choose the one that best meets your needs.

When deciding on a base-station antenna and its location, consider these points:

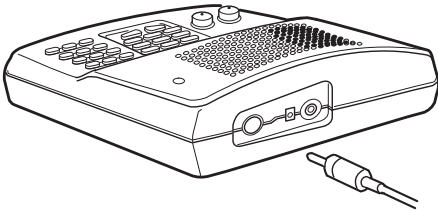
- The antenna should be as high as possible on the house.
- The antenna and its cable should be as far as possible from sources of electrical noise such as appliances or other radios.
- The antenna should be vertical for the best performance.

To connect a base-station antenna, first remove the supplied antenna from the scanner. Always use 50-ohm coaxial cable, such as RG-58 or RG-8, to connect the base-station antenna. For lengths over 50 feet, use RG-8 low-loss dielectric coaxial cable. If the antenna cable's connector does not fit in the **ANT** jack, you might also need an antenna plug

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adapter. Your local RadioShack store carries a wide variety of coaxial antenna cable and connectors.

Once you choose an antenna, follow the mounting instructions supplied with the antenna. Then route the antenna's cable to the scanner and connect the cable to the **ANT** jack on the back of the scanner.



### Cautions:

- Do not run the cable over sharp edges or moving parts that might damage it.
- Do not run the cable next to power cables or other antenna cables.
- Follow all cautions and warnings included with your antenna.

## CONNECTING POWER

Use the supplied 10V, 300-mA AC adapter to power the scanner.

**Warning:** Do not use the AC adapter's polarized plug with an extension cord receptacle unless the blades can be fully inserted to prevent blade exposure.

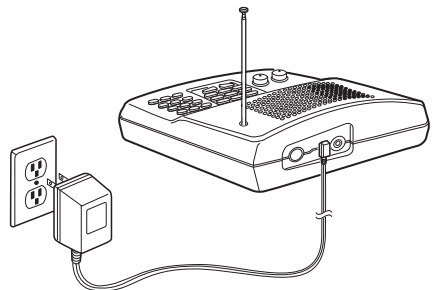
### Cautions:



You must use a Class 2 power source that supplies 10V AC and delivers 300 mA. Its plug must fit the scanner's **AC 10V** jack. The supplied adapter meets these specifications. Using an adapter that does not meet these specifications could damage the scanner or the adapter.

- A replacement adapter is available by special order through your local RadioShack store.
- Always connect the AC adapter to the scanner before you connect it to AC power. When you finish, disconnect the adapter from AC power before you disconnect it from the scanner.

Insert the AC adapter's barrel plug into the **AC 10V** jack on the back of the scanner, then plug the AC adapter into a standard AC outlet.

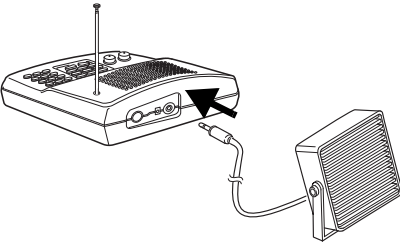


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## CONNECTING AN EXTERNAL SPEAKER

You can connect an optional external speaker with a  $\frac{1}{8}$ -inch (3.5-mm) plug to the scanner. Use an 8-ohm external speaker that can handle at least 2.5 watts of power. Your local RadioShack store sells scanner accessories, including external speakers.

Insert the speaker's plug into the **EXT. SP.** jack on the back of the scanner.

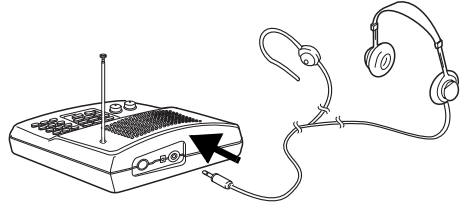


**Note:** Plugging in an external speaker disconnects the scanner's internal speaker.

## CONNECTING AN EARPHONE OR HEADPHONES

You can connect an optional earphone or pair of monaural headphones with a  $\frac{1}{8}$ -inch (3.5-mm) plug to the scanner. Your local RadioShack store sells a complete line of earphones and headphones.

Insert the earphone's or headphones' plug into the **EXT. SP.** jack on the back of the scanner.



**Note:** Plugging in an earphone or headphones disconnects the scanner's internal speaker.

## Listening Safely

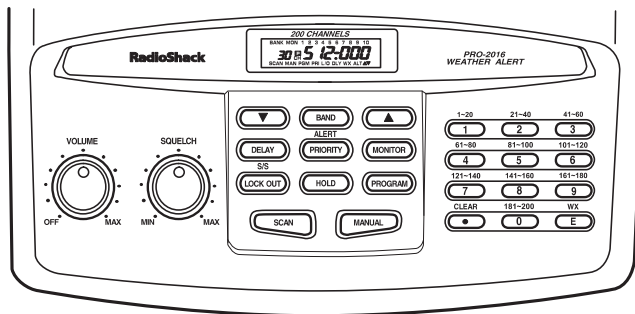
To protect your hearing, follow these guidelines when you use an earphone/headphones.

- Set the volume to the lowest setting before you begin listening. After you begin listening, adjust the volume to a comfortable level.
- Do not listen at extremely high volume levels. Extended high-volume listening can lead to permanent hearing loss.
- Once you set the volume, do not increase it. Over time, your ears adapt to the volume level, so a volume level that does not cause discomfort might still damage your hearing.



# UNDERSTANDING YOUR SCANNER

## A LOOK AT THE FRONT PANEL



- VOLUME** Turns the scanner on or off and adjusts the volume.
- SQUELCH** Adjusts the scanner's squelch.
- ▲ / ▼ Sets the search direction.
- BAND** Searches a band you select.
- DELAY** Programs a 2-second delay for the selected channel; sets a delay for all active frequencies during a search.
- ALERT/PRIORITY** Sets the scanner to the weather alert mode; turns priority on or off for a particular channel.
- MONITOR** Stores frequencies into, and accesses, the ten monitor memories.
- S/S-LOCKOUT** (search/skip/lockout) Skips a specified frequency during a band or direct search or locks out selected channels during scanning.
- HOLD** Pauses the scanner during a search.
- PROGRAM** Programs frequencies into channels.
- SCAN** Scans through the channels.
- MANUAL** Stops scanning to let you listen to a monitor memory or directly enter a channel number.

**1–9, 0**

Each key has a single-digit label, and the **1–9** and **0** keys also have a range of numbers. Use the digits on the keys to enter the numbers for a channel or a frequency. Use the range of numbers above the key (**61–80**, for example) to select or deselect the channels in a channel-storage bank.

**CLEAR/·**

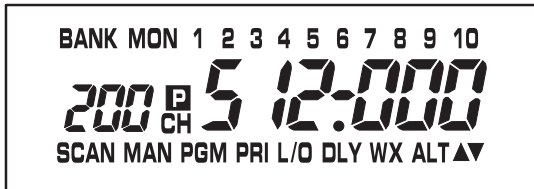
Clears an incorrect entry, or enters the decimal point when you enter a frequency.

**WX/E**

Scans the seven preprogrammed weather channels; stores frequencies into channels.

## A LOOK AT THE DISPLAY

The display has indicators that show the scanner's current operating mode. A good look at the display will help you understand your scanner.



**BANK**

Appears with a number (1–10) to its right to show which channel-storage banks are turned on for scanning.

**MON**

Appears with a number (1–10) to its right to show which monitor memory you are listening to.

**P**

Appears when you tune to a priority channel.

**CH**

Appears with a number (1–200) to its left to show which channel the scanner is tuned to.

**SCAN**

Appears when you scan channels.

**MAN**

Appears when you manually select a channel.

**PGM**

Appears when you program the scanner.

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<b>PRI</b>	Appears when the priority feature is turned on.
<b>L/O (lockout)</b>	Appears when you lock out channels or skip a frequency, or when you manually select a channel or frequency that is locked out or skipped.
<b>DLY</b>	Appears when the scanner is scanning or searching when you have programmed a 2-second delay.
<b>WX (weather)</b>	Appears when the scanner is tuned to the weather band.
<b>ALT</b>	Appears during weather alert mode and flashes when the scanner receives a weather alert.
<b>▲/▼</b>	Indicates the search direction during a search.
<b>b</b>	Appears instead of a channel number during a band search.
<b>d</b>	Appears instead of a channel number during a direct search.
<b>H</b>	Appears during a band search hold.
<b>h</b>	Appears during a direct search hold.

# UNDERSTANDING BANKS AND BANDS

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You can store frequencies into either a programmable memory location called a channel, or a temporary memory location called a monitor memory. You can store a frequency in each of the scanner's channels (up to 200) and up to 10 monitor memories.

Your scanner also has eight frequency bands, each covering a specific range of frequencies you can search.

## CHANNEL-STORAGE BANKS

To make it easier to identify and select the frequencies you want to listen to, the scanner's channels are divided into 10 channel-storage banks (1–9 and 0) of 20 channels each. You can use each channel-storage bank to group frequencies, such as those used by the police department, fire department, ambulance services, and amateur radio operators (see "Guide to the Action Bands" on Page 23).

For example, there might be three or four police departments in your area, each using several different frequencies. Additionally, there might be other law enforcement agencies such as state police, county sheriffs, or SWAT teams that use their own frequencies. You could program all law enforcement frequencies starting with Channel 1 (the first channel in Bank 1), then program the fire department, paramedic, and other public safety frequencies starting with Channel 21 (the first channel in Bank 2).

## MONITOR MEMORIES

Monitor memories are temporary storage areas where you can store up to ten frequencies during a search while you decide whether to save them into channels. You can manually select and listen to frequencies stored in monitor memories.

## FREQUENCY BANDS

Your scanner has eight frequency bands, each covering a specific range of frequencies. You can search these bands for specific broadcasts by repeatedly pressing **BAND** until the scanner displays the band you want.

For example, you can search through all frequencies between 29.000 and 54.000 MHz for specific broadcasts by repeatedly pressing **BAND** until **29-54** appears. The scanner then automatically searches the frequencies in that band.

This table shows the frequency band ranges displayed by the scanner and the typical usage, frequency coverage, and step for each.

<b>Displayed Frequency Band Range</b>	<b>Typical Usage</b>	<b>Frequency Coverage (MHz)</b>	<b>Step (kHz)</b>
<b>29-54</b>	10-Meter Amateur Radio, VHF Lo, 6-Meter Amateur Radio	29.000 to 54.000	5.0
<b>108-137</b>	Aircraft	108.000 to 136.975	12.5
<b>137-144</b>	Government	137.000 to 144.000	5.0
<b>144-148</b>	2-Meter Amateur Radio	144.000 to 148.000	5.0
<b>148-174</b>	VHF Hi	148.000 to 174.000	5.0
<b>406-450</b>	Government, 70-Centimeter Amateur Radio	406.000 to 450.000	12.5
<b>450-470</b>	UHF Lo	450.000 to 470.000	12.5
<b>470-512</b>	UHF "T" Band	470.000 to 512.000	12.5

**Notes:**

- Your scanner searches at the preset frequency step rate (5 or 12.5 kHz) for each band. You cannot change the frequency step rate.
- The scanner displays the nearest 1 kHz step. For example, if you tune to 406.1125, the scanner displays 406.112.
- While searching through a band, you might hear a frequency you want to store. You can store any frequency into a monitor memory.
- You cannot change or delete any of the frequencies in the frequency bands.

# OPERATION

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## TURNING ON THE SCANNER/SETTING VOLUME AND SQUELCH

1. Turn **VOLUME** and **SQUELCH** fully counterclockwise.
2. Turn **VOLUME** clockwise until you hear a hissing sound.
3. Turn **SQUELCH** clockwise, then leave it set to a point just after the hissing sound stops.

### Notes:

- If the scanner picks up unwanted, partial, or very weak transmissions, turn **SQUELCH** clockwise to decrease the scanner's sensitivity to these signals.
- If you want to listen to a weak or distant station, turn **SQUELCH** counterclockwise.
- If the scanner will not scan, turn **SQUELCH** further clockwise.

## RESETTING THE SCANNER

You might need to reset the scanner in any of the following conditions:

- before you use it for the first time (to clear anything that might already have been stored in memory previously)
- if the scanner's display locks up
- if the scanner does not work properly after you connect power

- if the scanner is dropped or subjected to an electrical shock

**Caution:** This procedure clears all the information you have programmed into the scanner. Use this procedure only when you are sure your scanner is not working properly.

Follow these steps to reset the scanner.

1. Turn off the scanner.
2. While you hold down **2** and **9**, turn on the scanner. When **CLEAR** appears, release **2** and **9**.

## MANUALLY STORING FREQUENCIES INTO CHANNELS

If you know of a frequency you want to store, you can manually store it into a channel.

Good references for active frequencies are RadioShack's *Police Call Radio Guide Including Fire and Emergency Services*, *Aeronautical Frequency Directory*, and *Maritime Frequency Directory*. We update these directories every year, so be sure to get a current copy. See also "Guide to the Action Bands" on Page 23 in this manual.

**Note:** If you do not have a reference to frequencies in your area, follow the steps in "Searching For and Temporarily Storing Active Frequencies" on Page 15 to search for transmissions.

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Follow these steps to manually store a frequency into a channel.

1. If the scanner is scanning, press **MANUAL**.
2. Using the number keys, enter the channel number where you want to store a frequency.
3. Press **PROGRAM. BANK** and the bank number, the selected channel number and **L/O** (if the selected channel number is empty), and **000.000** (or the previously programmed frequency) appear.
4. Using the number keys, enter the frequency you want to store into that channel, including the decimal point.

**Note:** Your scanner automatically rounds the entered frequency up to the closest valid frequency. For example, if you try to enter a frequency of 151.473, your scanner accepts it as 151.475.

5. Press **E** to store the frequency. If the channel was locked out, the lockout is removed.

**Note:** If you entered an invalid frequency in Step 4, the scanner displays **Error**. Press **CLEAR**, then repeat Steps 4 and 5.

6. To program the next channel in sequence, repeat Steps 3–5. To program another channel (not in sequence), repeat Steps 2–5.

## SEARCHING FOR AND TEMPORARILY STORING ACTIVE FREQUENCIES

You can search for transmissions using either a band or direct search, then temporarily store the frequencies for those transmissions into monitor memories.

### Notes:

- If you manually tune to a search skip frequency, the display shows **L/O** (see “Skipping Frequencies/Channels” on Page 19).
- You can use the scanner’s delay feature while using band or direct search. See “Delay” on Page 19.

## Band Search

Using band search, you can select a frequency band and search for transmissions within only that band.

1. Repeatedly press **BAND** until you see the frequency band you want to search.

The scanner displays **▲** or **▼**, the range for each frequency band, **b** appears, and the number of the current monitor memory blinks on the display. Then the scanner starts to search the frequencies in the band. When the scanner finds a transmission, it stops and displays the frequency until the transmission stops, then the scanner starts searching again.

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2. To manually search the band, press **HOLD** after the scanner starts automatically searching the frequencies. The scanner displays **H** (hold), **▲** or **▼**, and a frequency within the band you selected.

3. Repeatedly press **▲** to step from the lower to the upper range, or **▼** to step from the upper to the lower range.

Hold down **▲** or **▼** for about 1 second or press **HOLD** to return to automatic search.

4. When the scanner finds an active frequency, you can do any of the following:

- save the frequency into the current monitor memory by pressing **MONITOR**.
- continue searching by pressing **▲** or **▼**.
- stop searching and listen to the frequency by pressing **HOLD**. **H** (hold) appears.

**Note:** You can change the direction of a manual search by pressing **▲** or **▼** once.

## Direct Search

Using direct search, you can enter a frequency, then search for transmissions above or below that frequency within all of the frequency bands.

1. Press **MANUAL**.
2. Use the number keys to enter the frequency where you want to start

the search. Press **•** to enter the decimal point.

3. Press **▲** or **▼** to search up or down from the selected frequency. **d** (direct) and **▲** or **▼** appear, and the next available monitor memory number flashes.

**Note:** If you entered an invalid frequency in Step 2, the scanner displays **Error**. Press **CLEAR**, then repeat Steps 2 and 3.

4. When the scanner finds an active frequency, you can do any of the following:

- save the frequency into the current monitor memory by pressing **MONITOR**.
- continue searching or change the search direction by pressing **▲** or **▼**.
- stop searching and listen to the frequency by pressing **HOLD**. **h** (hold) appears.

To manually step through frequencies one at a time after you stop a search, repeatedly press **▲** or **▼**. To continue searching, either press **HOLD** or hold down **▲** or **▼** for about 1 second.

## LISTENING TO MONITOR MEMORIES

After you store frequencies into the scanner's monitor memories, you can listen to them by pressing **MANUAL**, **MONITOR**, then the number for the desired monitor memory.



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You can also select a monitor memory by repeatedly pressing **MONITOR** until the desired monitor memory appears.

**Note:** To listen to the monitor memories, the priority channel feature must be turned off (see “Priority” on Page 20).

## MOVING A FREQUENCY FROM A MONITOR MEMORY TO A CHANNEL

1. If the scanner is scanning, press **MANUAL**.
2. Use the number keys to enter the channel number where you want to store the monitor frequency, then press **PROGRAM**. **PGM** appears.
3. Press **MONITOR**. The channel number flashes and the frequency stored in the monitor memory and the monitor memory’s number appear.
4. Use the number keys to enter the monitor memory number that has the frequency you want to store into the channel. The frequency appears.
5. Press **E**. The scanner stores the frequency in the selected channel.

## DELETING A FREQUENCY FROM A CHANNEL

1. If the scanner is scanning, press **MANUAL**.
2. Use the number keys to enter the channel number containing the frequency you want to delete.
3. Press **PROGRAM**.
4. Press **0** then **E**. The frequency is deleted.

To replace a frequency stored in a monitor memory, store a new frequency in that monitor memory.

## SCANNING CHANNELS

**Note:** You cannot scan channels until you have stored frequencies in them.

To scan channels stored in the channel-storage banks, press **SCAN**. The scanner scans through all channels in the active banks.

To select one or more channel-storage banks while scanning, select each bank you want to scan by pressing its number key so the bank’s number appears on the display.

**Note:** The channels for each bank are listed above the scanner’s number keys.

To turn off channel-storage banks, press the number key for each of the bank(s) so the bank’s number disappears. The scanner does not scan any of the stored channels within banks you have turned off.

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## Notes:

- You can manually select any channel in a bank, even if the bank is turned off.
- You cannot turn off all ten banks.
- The scanner skips channels that have been locked out (see “Skipping Frequencies/Channels” on Page 19).

## MANUALLY SELECTING A CHANNEL

You can continuously monitor a specific channel without scanning. This is useful if you hear an emergency broadcast on a channel and want to hear all the details (even though there might be periods of silence) or if you want to monitor only a specific channel or a locked-out channel.

Follow these steps to manually select a channel.

1. Press **MANUAL**.
2. Use the number keys to enter the desired channel number, then press **MANUAL** again.

## Notes:

- If your scanner is scanning and stops at the desired channel, simply press **MANUAL** to manually select the channel.
- If you repeatedly press **MANUAL**, the scanner steps through the channels.

# SPECIAL FEATURES

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## DELAY

Many agencies use a two-way radio system that might have a pause of several seconds between a query and a reply. To avoid missing a reply, you can program a 2-second delay into any of your scanner's channels or frequencies. Then, when the scanner stops on the channel, **DLY** appears and the scanner continues to monitor the channel for 2 seconds after the transmission stops before it resumes scanning or searching.

You can program a 2-second delay in either of the following ways:

- If the scanner is scanning and stops on an active channel, quickly press **DELAY** before it starts to scan again.
- If the desired channel is not selected, manually select the channel then press **DELAY**.

If the scanner is searching, press **DELAY** during the search. **DLY** appears on the display and the scanner automatically adds a 2-second delay to every transmission it stops on.

To turn off delay on any channel, select that channel then press **DELAY**. **DLY** disappears. To turn off delay for all frequencies during a search, simply press **DELAY**.

## SKIPPING FREQUENCIES/CHANNELS

You can scan channels faster by skipping ones that have a continuous transmission, such as a weather channel. You can lock out up to all 200 channels while scanning, or skip up to 20 frequencies during a band or direct search.

To skip a channel/frequency while scanning or searching, press **S/S-LOCKOUT** when the scanner stops on it.

### Notes:

- If you skip more than 20 search frequencies, each new frequency replaces an earlier one, starting from the first stored frequency.
- You can manually select skipped frequencies after you press **HOLD** to stop a search. The scanner displays **L/O** when you select a skipped frequency. See "Manually Selecting a Channel" on Page 18).

## Removing Skip from Frequencies

To remove the skip from a frequency while searching, press **HOLD** to stop the search, press **▲** or **▼** to select the skipped frequency, then repeatedly press **S/S** until **L/O** disappears.

To remove the skip from all frequencies at once while searching, hold down **S/S-LOCKOUT** until the scanner beeps twice.

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**Note:** If you turned the key tone off (see “Turning the Key Tone On or Off” on Page 21), the scanner does not beep when you hold down **S/S-LOCKOUT**.

## Removing Lockout from Channels

Follow these steps to remove the lockout from a channel while scanning.

1. Press **MANUAL** to stop scanning.
2. Use the number keys to enter the channel number you want to delete the lockout from.
3. Press **MANUAL**.
4. Repeatedly press **LOCKOUT** until **L/O** disappears.

To remove the lockout from all channels while scanning, use the number keys to select the banks containing the skipped channels, press **MANUAL**, then hold down **LOCKOUT** until the scanner beeps twice.

**Note:** If you turned off the key tone (see “Turning the Key Tone On or Off” on Page 21), the scanner does not beep when you hold down **LOCKOUT**.

## PRIORITY

The priority feature lets you scan through programmed channels and still not miss important or interesting calls on specific channels. You can program one stored channel in each bank as a priority channel (up to 10 total). As the scanner

scans, it checks the priority channels in each selected bank for activity every 2 seconds.

### Notes:

- You can skip priority channels. If you skip all priority channels, the scanner displays **P CH LOC OUT** when you turn on the priority feature. See “Skipping Frequencies/Channels” on Page 19.
- The priority feature must be turned off to listen to monitor memories.

The scanner automatically designates the first channel in each bank as that bank’s priority channel. Follow these steps to program a different channel as the priority channel.

1. Press **PROGRAM**.
2. Use the number keys to enter the channel number you want to program as the priority channel, then press **PRIORITY**. **P** appears to the right of the channel number.
3. Repeat Steps 1 and 2 for each channel you want to program as a priority channel.

To review the priority channel numbers for all banks, press **PROGRAM** then repeatedly press **PRIORITY**.

To turn on priority, press **PRIORITY** during scanning or when **MAN** appears. **PRI** appears, and the scanner checks the priority channel in each selected bank every 2 seconds. It stays on the channel if there is activity, and **P** appears.

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To turn off the priority feature, press **PRI**. **PRI** disappears.

**Note:** If you are scanning more than one bank in which a priority channel has been programmed, the scanner stops on the lowest-numbered priority channel first while scanning.

## LISTENING TO THE WEATHER BAND

The National Oceanic and Atmospheric Administration (NOAA) uses 7 frequencies to broadcast local forecasts and regional weather information. We have preprogrammed your scanner with these frequencies.

**Note:** For a list of all 7 national weather frequencies, see “National Weather Frequencies” on Page 22.

To scan the preprogrammed weather channels, press **WX**. **WX** appears, and the scanner searches the weather channels and stops on an active broadcast. If a broadcast is weak, press **WX** again to continue searching through the weather channels. Press **▲** or **▼** to switch the search direction.

### Weather Alert

Your scanner’s weather alert feature can warn you when your local weather station broadcasts a severe weather emergency signal. (See “Testing Alert Tone”).

1. Press **WX** to find the clearest local weather broadcasting station.

2. Press **ALERT**. **ALERT** appears and the broadcast turns off.

When a severe weather emergency signal is broadcast, the scanner sounds a loud alarm (regardless of the volume control setting), and **H** appears and **ALERT** flashes. The alarm continues until the emergency signal stops transmitting.

To manually turn off the siren and exit the weather alert mode, press **ALERT**.

### Testing Alert Tone

To hear the alert tone, make sure the scanner is not set to sound an alert tone, press **WX**, then hold down **ALERT**. The tone sounds and the frequency and **TEST** alternately appear.

Press **ALERT** to exit the alert tone mode.

## TURNING THE KEY TONE ON OR OFF

The scanner is preset to sound a tone each time you press any of its keys.

Follow these steps to turn the scanner’s key tone on or off.

1. If the scanner is turned on, turn **VOLUME** counterclockwise until it clicks to turn it off.
2. Hold down **S/S-LOCKOUT** while you turn on the scanner. **no BEEP** (if the key tone is off) or **On BEEP** (if the key tone is on) appears for about 3 seconds.

# A GENERAL GUIDE TO SCANNING

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Your scanner's reception is mainly "line-of-sight." You usually cannot hear stations that are beyond the horizon.

## GUIDE TO FREQUENCIES

### Ham Radio Frequencies

Ham radio operators often broadcast emergency information when other means of communication break down.

The following chart shows the voice frequencies that you can monitor:

Wavelength (Meters)	Voice (MHz)
10-Meter	29.000–29.700 MHz
6-Meter	50.000–54.000 MHz
2-Meter	144.000–148.000 MHz
70-Centimeter	420.000–450.000 MHz

### National Weather Frequencies

162.400	162.475	162.525
162.425	162.500	162.550
162.450		

### Birdie Frequencies

Every scanner has birdie frequencies. Birdies are signals created by the scanner's internal circuits. These stray frequencies might interfere with broadcasts on the same or similar frequencies. If you program one of these frequencies, you hear only noise on that frequency. If the interference is not severe, you might be able to turn **SQUELCH** clockwise to cut out the birdie.

This scanner's known birdie frequencies (in MHz) are 171.250 and 460.0125.

To find the birdies in your scanner, begin by disconnecting the antenna and moving it away from the scanner. Make sure that no other nearby radio or TV sets are turned on near the scanner. Use the search function and search every frequency range from its lowest frequency to the highest. Occasionally, the searching will stop as if it had found a signal, often without any sound. That is a birdie. Make a list of all the birdies in your scanner for future reference.

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# GUIDE TO THE ACTION BANDS

## Typical Band Usage

### VHF Band (29.00-300.00 MHz)

Low Range	29.00–50.00 MHz
6-Meter Amateur	50.00–54.00 MHz
U.S. Government	137.00–144.00 MHz
2-Meter Amateur	144.00–148.00 MHz
High Range	148.00–174.00 MHz

### UHF Band (300 MHz-3.0 GHz)

U.S. Government	406.00–420.00 MHz
70-cm Amateur	420.00–450.00 MHz
Low Range	450.00–470.00 MHz
FM-TV Audio Broadcast, Wide Band	470.00–512.00 MHz

## Primary Usage

As a general rule, most of the radio activity is concentrated on the following frequencies:

### VHF Band

Activities	Frequencies
Government, Police, and Fire	153.785–155.980 MHz
Emergency Services	158.730–159.460 MHz
Railroad	160.000–161.900 MHz

### UHF Band

Activities	Frequencies
Land-Mobile “Paired” Frequencies	450.000–470.000 MHz
Base Stations	451.025–454.950 MHz
Mobile Units	456.025–459.950 MHz
Repeater Units	460.025–464.975 MHz
Control Stations	465.025–469.975 MHz

**Note:** Remote control stations and mobile units operate at 5 MHz higher than their associated base stations and relay repeater units.

# BAND ALLOCATION

Use the following listing of the typical services within your scanner's frequency coverage to assist you to decide which frequency ranges to scan. These frequencies are subject to change, and might vary from area to area. For a more complete listing, refer to the "Police Call Radio Guide including Fire and Emergency Services," available at your local RadioShack store.

## Abbreviations

## Services

BIFC	Boise (ID) Interagency Fire Cache
BUS	Business
CAP	Civil Air Patrol
CB	Citizens Band
CCA	Common Carrier
CSB	Conventional Systems
CTSB	Conventional/Trunked Systems
FIRE	Fire Department
HAM	Amateur (Ham) Radio
GOVT	Federal Government
GMR	General Mobile Radio
GTR	General Trunked
IND	Industrial Services (Manufacturing, Construction, Farming, Forest Products)
MAR	Military Amateur Radio
MARI	Maritime Limited Coast (Coast Guard, Marine Telephone, Shipboard Radio, Private Stations)
MARS	Military Affiliate Radio System
MED	Emergency/Medical Services
MIL	U.S. Military
MOV	Motion Picture/Video Industry
NEW	New Mobile Narrow
NEWS	Relay Press (Newspaper Reporters)
OIL	Oil/Petroleum Industry
POL	Police Department
PUB	Public Services (Public Safety, Local Government, Forestry Conservation)
PSB	Public Safety
PTR	Private Trunked
ROAD	Road & Highway Maintenance
RTV	Radio/TV Remote Broadcast Pickup
TAXI	Taxi Services
TELB	Mobile Telephone (Aircraft, Radio Common Carrier, Landline Companies)
TELC	Cordless Phones
TELM	Telephone Maintenance
TOW	Tow Trucks
TRAN	Transportation Services Trucks, Tow Trucks, Buses, Railroad, Other)



TSB .....	Trunked Systems
TVn .....	FM-TV Audio Broadcast
USXX .....	Government Classified
UTIL .....	Power & Water Utilities
WTHR .....	Weather

**VERY HIGH FREQUENCY (VHF)**

**VHF Low Band—(29–50 MHz—in 5 kHz steps)**

29.000–29.700 .....	HAM
29.900–30.550 .....	GOVT, MIL
30.580–31.980 .....	IND, PUB
32.000–32.990 .....	GOVT, MIL
33.020–33.980 .....	BUS, IND, PUB
34.010–34.990 .....	GOVT, MIL
35.020–35.980 .....	BUS, PUB, IND, TELM
36.000–36.230 .....	GOVT, MIL
36.250 .....	Oil Spill Cleanup
36.270–36.990 .....	GOVT, MIL
37.020–37.980 .....	PUB, IND
38.000–39.000 .....	GOVT, MIL
39.020–39.980 .....	PUB
40.000–42.000 .....	GOVT, MIL, MARI
42.020–42.940 .....	POL
42.960–43.180 .....	IND
43.220–43.680 .....	TELM, IND, PUB
43.700–44.600 .....	TRAN
44.620–46.580 .....	POL, PUB
46.600–46.990 .....	GOVT, TELC
47.020–47.400 .....	PUB
47.420 .....	American Red Cross
47.440–49.580 .....	IND, PUB
49.610–49.990 .....	MIL, TELC

**6-Meter Amateur Band—(50–54 MHz)**

50.00–54.00 .....	HAM
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**U.S. Government Band (137–144 MHz)**

137.000–144.000 .....	GOVT, MIL
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**2-Meter Amateur Band (144–148 MHz)**

144.000–148.000 .....	HAM
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**VHF High Band (148–174 MHz)**

148.050–150.345 .....	CAP, MAR, MIL
150.775–150.790 .....	MED
150.815–150.980 .....	TOW, Oil Spill Cleanup
150.995–151.475 .....	ROAD, POL
151.490–151.955 .....	IND, BUS
151.985 .....	TELM
152.0075 .....	MED

152.030–152.240	TELB
152.270–152.480	IND, TAXI, BUS
152.510–152.840	TELB
152.870–153.020	IND, MOV
153.035–153.725	IND, OIL, UTIL
153.740–154.445	PUB, FIRE
154.490–154.570	IND, BUS
154.585	Oil Spill Cleanup
154.600–154.625	BUS
154.655–156.240	MED, ROAD, POL, PUB
156.255–157.425	OIL, MARI
157.450	MED
157.470–157.515	TOW
157.530–157.725	IND, TAXI
157.740	BUS
157.770–158.100	TELB
158.130–158.460	BUS, IND, OIL, TELM, UTIL
158.490–158.700	TELB
158.730–159.465	POL, PUB, ROAD
159.480	OIL
159.495–161.565	TRAN
161.580–162.000	OIL, MARI, RTV
162.0125–162.35	GOVT, MIL, USXX
162.400–162.550	WTHR
162.5625–162.6375	GOVT, MIL, USXX
162.6625	MED
162.6875–163.225	GOVT, MIL, USXX
163.250	MED
163.275–166.225	GOVT, MIL, USXX
166.250	GOVT, RTV, FIRE
166.275–169.400	GOVT, BIFC
169.445–169.505	Wireless Mikes, GOVT
169.55–169.9875	GOVT, MIL, USXX
170.000–170.150	BIFC, GOVT, RTV, FIRE
170.175–170.225	GOVT
170.245–170.305	Wireless Mikes
170.350–170.400	GOVT, MIL
170.425–170.450	BIFC
170.475	PUB
170.4875–173.175	GOVT, PUB, Wireless Mikes
173.225–173.5375	MOV, NEWS, UTIL, MIL
173.5625–173.5875	MIL Medical/Crash Crews
173.60–173.9875	GOVT

**ULTRA HIGH FREQUENCY (UHF)**

**U. S. Government Band (406–420 MHz)**

406.125–419.975	GOVT, USXX
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## 70-cm Amateur Band (420–450 MHz)

420.000–450.000 ..... HAM

## Low Band (450–470 MHz)

450.050–450.925 ..... RTV  
451.025–452.025 ..... IND, OIL, TELM, UTIL  
452.0375–453.00 ..... IND, TAXI, TRAN TOW, NEWS  
453.0125–454.000 ..... PUB, OIL  
454.025–454.975 ..... TELB  
455.050–455.925 ..... RTV  
457.525–457.600 ..... BUS  
458.025–458.175 ..... MED  
460.0125–460.6375 ..... FIRE, POL, PUB  
460.650–462.175 ..... BUS  
462.1875–462.450 ..... BUS, IND  
462.4625–462.525 ..... IND, OIL, TELM, UTIL  
462.550–462.925 ..... GMR, BUS  
462.9375–463.1875 ..... MED  
463.200–467.925 ..... BUS

## FM-TV Audio Broadcast, UHF Wide Band (470–512 MHz) (Channels 14 through 69 in 6 MHz steps)

475.750 ..... Channel 14  
481.750 ..... Channel 15  
487.750 ..... Channel 16  
493.750 ..... Channel 17  
499.750 ..... Channel 18  
505.750 ..... Channel 19  
511.750 ..... Channel 20

**Note:** Some cities use the 470–512 MHz band for land/mobile service.

## FREQUENCY CONVERSION

The tuning location of a station can be expressed in frequency (kHz or MHz) or in wavelength (meters). The following information can help you make the necessary conversions.

1 MHz (million) = 1,000 kHz (thousand)

To convert MHz to kHz, multiply the number of megahertz by 1,000:

$9.62 \text{ (MHz)} \times 1000 = 9620 \text{ kHz}$

To convert from kHz to MHz, divide the number of kilohertz by 1,000:

$2780 \text{ (kHz)} \div 1000 = 2.780 \text{ MHz}$

To convert MHz to meters, divide 300 by the number of megahertz:

$300 \div 7.1 \text{ MHz} = 42.25 \text{ meters}$

# TROUBLESHOOTING

If your scanner is not working as it should, these suggestions might help you eliminate the problem. If the scanner still does not operate properly, take it to your local RadioShack store for assistance.

SYMPTOM	SUGGESTION
Scanner is on, but will not scan.	Be sure <b>SQUELCH</b> is adjusted properly. See “Turning On the Scanner/Setting Volume and Squelch” on Page 14.
	Make sure channels are stored in the channel-storage banks and the scanner is set to scan. See “Scanning Channels” on Page 17.
Scanner receives stations poorly or not at all.	Check the antenna (indoor or outdoor).
	Signals may be blocked from being received by the scanner due to metal frames or material in the building. Change the scanner’s location and try again.
	Be sure <b>SQUELCH</b> is adjusted properly. See “Turning On the Scanner/Setting Volume and Squelch” on Page 14.
<ul style="list-style-type: none"> <li>• The scanner’s keys do not work.</li> <li>• The display shows random segments.</li> </ul>	The scanner might be locked. Reset the scanner. See “Resetting the Scanner” on Page 14.
Scanner does not work at all.	Check that the power supply is working.
	The scanner might be locked. Reset the scanner. See “Resetting the Scanner” on Page 14.
Scanner locks on frequencies that have an unclear transmission.	Be sure <b>SQUELCH</b> is adjusted properly. See “Turning On the Scanner/Setting Volume and Squelch” on Page 14.
	Be sure birdie frequencies are not programmed, or listen to birdie frequencies manually. See “Birdie Frequencies” on Page 22.

# CARE AND MAINTENANCE

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Your RadioShack 200Ch VHF/Air/UHF Home Scanner is an example of superior design and craftsmanship. The following suggestions will help you care for your scanner so you can enjoy it for years.



Keep the scanner dry. If it gets wet, wipe it dry immediately. Liquids might contain minerals that can corrode the electronic circuits.



Use and store the scanner only in normal temperature environments. Temperature extremes can shorten the life of electronic devices, and distort or melt plastic parts.



Keep the scanner away from dust and dirt, which can cause premature wear of parts.



Handle the scanner gently and carefully. Dropping it can damage circuit boards and cases and can cause the scanner to work improperly.



Wipe the scanner with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the scanner.

Modifying or tampering with the scanner's internal components can cause a malfunction and might invalidate its warranty and void your FCC authorization to operate it. If your scanner is not performing as it should, take it to your local RadioShack store for assistance.

# SPECIFICATIONS

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## Frequency Coverage:

VHF Lo .....	29.7–50 MHz (in 5 kHz steps)
Amateur Radio .....	29–29.7 MHz (in 5 kHz steps) 50–54 MHz (in 5 kHz steps) 144–148 MHz (in 5 kHz steps) 420–450 MHz (in 12.5 kHz steps)
Aircraft .....	108–136.975 MHz (in 12.5 kHz steps)
Government .....	137–144 MHz (in 5 kHz steps) 406–420 MHz (in 12.5 kHz steps)
VHF Hi .....	148–174 MHz (in 5 kHz steps)
UHF .....	450–470 MHz (in 12.5 kHz steps)
UHF “T” .....	470–512 MHz (in 12.5 kHz steps)

Channels of Operation ..... Any 200 channels in any band combinations  
(20 channels × 10 banks) and 10 monitor channels

## Sensitivity (20 dB S/N with 3 kHz deviation for FM, 60% modulation for AM):

29–54 MHz .....	0.5 $\mu$ V
108–136.975 MHz .....	1.8 $\mu$ V
137–174 MHz .....	0.6 $\mu$ V
406–512 MHz .....	0.6 $\mu$ V

## Selectivity (@162.4 MHz (WX)):

–6 dB .....	$\pm$ 10 kHz
–50 dB .....	$\pm$ 16 kHz

Search Speed ..... 20 Steps/Sec.

Scan Speed ..... 20 Channels/Sec.

Priority Sampling ..... 2 Seconds

Delay Time ..... 2 Seconds

IF Frequencies ..... 21.4 MHz and 450 kHz

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Antenna Impedance .....	50 Ohms
Audio Power .....	840 mW Maximum
Built-In Speaker .....	2 <sup>1</sup> / <sub>4</sub> Inch (57 mm), 8-Ohm, Dynamic Type
AC Adapter .....	10 Volts AC
Dimensions (HWD) .....	2 <sup>3</sup> / <sub>8</sub> × 9 <sup>3</sup> / <sub>8</sub> × 6 <sup>11</sup> / <sub>16</sub> Inches (60 × 238 × 170 mm)
Weight (without AC Adapter) .....	1 lb 2 oz (510 g)

Specifications are typical; individual units might vary. Specifications are subject to change and improvement without notice.

### **Limited One-Year Warranty**

This product is warranted by RadioShack against manufacturing defects in material and workmanship under normal use for one (1) year from the date of purchase from RadioShack company-owned stores and authorized RadioShack franchisees and dealers. EXCEPT AS PROVIDED HEREIN, RadioShack MAKES NO EXPRESS WARRANTIES AND ANY IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE DURATION OF THE WRITTEN LIMITED WARRANTIES CONTAINED HEREIN. EXCEPT AS PROVIDED HEREIN, RadioShack SHALL HAVE NO LIABILITY OR RESPONSIBILITY TO CUSTOMER OR ANY OTHER PERSON OR ENTITY WITH RESPECT TO ANY LIABILITY, LOSS OR DAMAGE CAUSED DIRECTLY OR INDIRECTLY BY USE OR PERFORMANCE OF THE PRODUCT OR ARISING OUT OF ANY BREACH OF THIS WARRANTY, INCLUDING, BUT NOT LIMITED TO, ANY DAMAGES RESULTING FROM INCONVENIENCE, LOSS OF TIME, DATA, PROPERTY, REVENUE, OR PROFIT OR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, EVEN IF RadioShack HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

In the event of a product defect during the warranty period, take the product and the RadioShack sales receipt as proof of purchase date to any RadioShack store. RadioShack will, at its option, unless otherwise provided by law: (a) correct the defect by product repair without charge for parts and labor; (b) replace the product with one of the same or similar design; or (c) refund the purchase price. All replaced parts and products, and products on which a refund is made, become the property of RadioShack. New or reconditioned parts and products may be used in the performance of warranty service. Repaired or replaced parts and products are warranted for the remainder of the original warranty period. You will be charged for repair or replacement of the product made after the expiration of the warranty period.

This warranty does not cover: (a) damage or failure caused by or attributable to acts of God, abuse, accident, misuse, improper or abnormal usage, failure to follow instructions, improper installation or maintenance, alteration, lightning or other incidence of excess voltage or current; (b) any repairs other than those provided by a RadioShack Authorized Service Facility; (c) consumables such as fuses or batteries; (d) cosmetic damage; (e) transportation, shipping or insurance costs; or (f) costs of product removal, installation, set-up service adjustment or reinstallation.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

RadioShack Customer Relations, 200 Taylor Street, 6th Floor, Fort Worth, TX 76102

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